FBI Uses Unique Application of Award Fee Incentive

Additional Award Fee Pool Encourages Commercial Competitor Cooperation at Program Level

A L A N   L .   S T O N E

Since the inception of the Federal Bureau of Investigation (FBI) in 1908, identification of individuals by fingerprint has been a top priority. As our country grew, demand for identification of individuals also grew. Today, the FBI's Criminal Justice Identification Services (CJIS) Division in Clarksburg, W.Va., receives more than 50,000 identification requests each day.

Some Progress… But Still Far to Go

The Clarksburg facility receives these requests on fingerprint cards — roughly half are criminal arrest cards (individuals who were recently arrested); and the remaining half are civil application cards (individuals applying for jobs requiring criminal arrest background checks, e.g., bank officials, police officers). Despite significant progress in automating the fingerprint process in the 1970s and 1980s, fingerprint identification remains a relatively slow, labor-intensive process.

In the early 1990s, the Bureau initiated development of a more robust automated fingerprint identification system. Called the Integrated Automated Fingerprint Identification System (IAFIS), FBI systems developers formed this major automated data processing development program under General Services Administration "Trailboss" guidelines, with delegation of procurement authority to the FBI.

FBI Complex, Clarksburg, W.Va.

Cooperation Key to Acquisition Strategy

The acquisition strategy used a tailored MIL-STD-2167A scheme. Initially, the FBI, as "prime contractor," awarded the three major components of IAFIS competitively. After reviewing the contract proposals, they selected Lockheed Martin Information Systems, PRC Inc. [now Litton/PRC], and Science Applications International Corporation (SAIC) as the major segment contractors. However, these selections presented the FBI with a dilemma: how does a program or project manager persuade three fierce commercial competitors to cooperate with each other — and the FBI — when

it is not necessarily in their best commercial interests to do so?

Further compounding the problem, the FBI subsequently selected another Lockheed Martin entity to assist with integrating the three-segment contractor deliveries into a system.

FBI Fingerprinting - A Labor-intensive History

Today's fingerprint identification process sometimes takes months from the arrest to an identification decision. In some cases, the arresting law enforcement official may release an individual, only to learn upon receipt of a completed, positive identification

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Stone is a supervisory computer engineer assigned to the FBI Complex, Clarksburg, W.Va. He is retired from the U.S. Air Force and is a former DSMC Professor of Systems Engineering.

that the individual is wanted by law enforcement officials in another state. Designed to provide identification in hours rather than months, IAFIS gives law enforcement officials the capability to identify individuals long before their initial appearance before a court.

From first inception, the Bureau's systems developers agreed on the principal design requirement for IAFIS: it must provide two-hour processing of urgent, electronically submitted fingerprint identification requests (24 hours for non-urgent requests). This service alone will keep at least *10,000 criminals a year* off the streets!

Additionally, IAFIS provides federal, state, and local users with five basic services:

- **Ten-print-based identification services** provide identification (or non-identification) decisions based on a search of FBI databases. To begin a ten-print-based identification, the user provides a criminal or civil fingerprint card (or digital image of the card across an electronic network), and IAFIS generates potential candidates. An FBI fingerprint examiner then makes the identification or non-identification decision and renders that decision to the user.

- **Latent print services** provide users with case investigation and image identification services. Initially, users submit fingerprint evidence from a crime scene in photographic or electronic form, which is then matched against FBI database files. An FBI latent fingerprint specialist screens the resultant candidates and makes the identification decision.

- **Subject search and criminal history services** support requests for criminal histories for known as well as unknown subjects.

- **Document and image services** provide database update and

purge actions as well as requests for file and image information.

- **Remote search services** allow users to submit ten-print as well as latent searches against FBI database files; IAFIS then generates the search results and returns the images to users without FBI service-provider assistance. In the case of remote search services, the *user* provides the identification or non-identification decision.

The IAFIS consists of three major segments and an integrated communications element.

- **The Identification Tasking and Networking** (ITN) segment accepts fingerprint submissions and related electronic transaction requests and controls their end-to-end processing. ITN links users and FBI service providers through internal and external communications networks and provides fingerprint image storage and retrieval services. Litton/PRC, Inc., of McLean, Va., is currently developing the ITN.

- **The Interstate Identification Index** (III) segment contains the national repository of criminal history records that IAFIS will automatically search. SAIC, Inc., of McLean, Va., is currently developing the III.

- **The Automated Fingerprint Identification System** (AFIS) segment provides the primary ten-print and latent fingerprint searches against the FBI databases. Lockheed Martin Information Systems of Orlando, Fla., is currently developing the AFIS.

- **The CJIS Wide-Area Network** (CJIS WAN) provides a secure electronic communications network between IAFIS and state and federal users. The FBI developed the CJIS WAN, using commercial off-the-shelf (COTS) equipment and the FTS 2000 (Sprint) network. In addition, IAFIS will be integrated with the National Criminal Information Center (NCIC) 2000 network and the National Law Enforcement Telecommunications System (NLETS) (Figure 1).
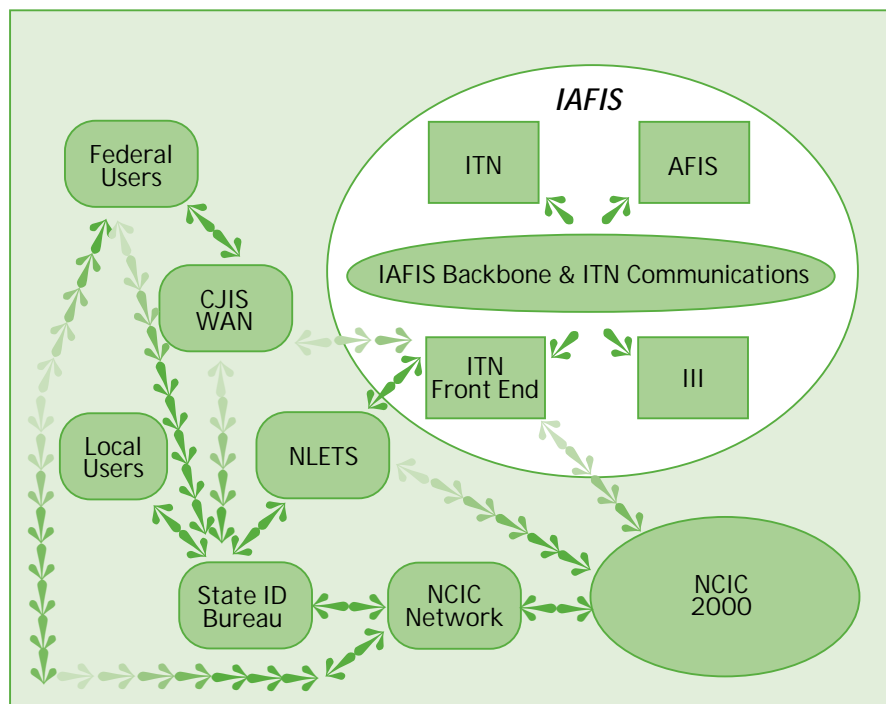
FIGURE 1. **IAFIS Architecture**

Initially, the FBI's acquisition strategy called for an initial operational capability (IOC) in 1998 and a full operational capability (FOC) in late 1999. However, as the program neared its preliminary design phase, the program team reassessed the risk of this approach.

To lower the overall development risk and slightly accelerate the schedule for FOC (now Build F), in January 1996, the team decided to change to an incremental approach with six "Builds." This change in strategy also allowed the program to deploy limited functionality earlier than originally planned in order to assist current fingerprint operations.

Of particular concern was integration of the three segments into the IAFIS, which system developers viewed as one of the most significant development risks. However, several direct actions mitigated this risk.

The program team identified and obtained the services of a "world-class" integrator (Lockheed Martin) and lowered the overall development risk by adjusting the award fee structure. The award fee action was necessary because the program office observed some hesitation to share critical information among the segment contractors. For the program to succeed, the team considered it critical to correct this perceived reluctance of competitors to share information.

Award Fee Strategy

The original award fee plans for the three segments included common criteria but adjustable weighting, depending on the development phase of the specific segment. Upon transition to multiple builds requiring coordinated integration, the program team needed some means to bring the three development programs into congruency. An additional award fee pool designed to encourage system-level effort, while simultaneously retaining emphasis on individual segment performance, ultimately achieved that end.

The changed basic criteria included segment as well as system performance in four critical areas:

- Cost Containment
- Schedule Containment
- Technical Functional
- Technical Performance

Figure 2 shows typical detailed system-level criteria used. Again, the program team used these criteria in addition to the original segment-level criteria, and brought additional money into the award fee pool.

Results

The FBI felt the impacts of these changes even before the program team formally began the proposal evaluation process, which included changes to the incremental build strategy and award fee structure. The three segment contractors (with strong encouragement from the FBI) began a fully integrated IAFIS build-development effort. With minimal technical assistance from the FBI, the segment contractors also developed their own incremental development strategy, which met all technical requirements, and simultaneously reduced development risk significantly.

While each contractor kept separate their own individual cost proposals, they fully coordinated their technical proposal development efforts. This included full interchange of information and technical specialists, as needed, to produce three, fully integrated and consistent proposals. Understandably, this greatly aided the FBI during subsequent evaluations, negotiations, and awards.
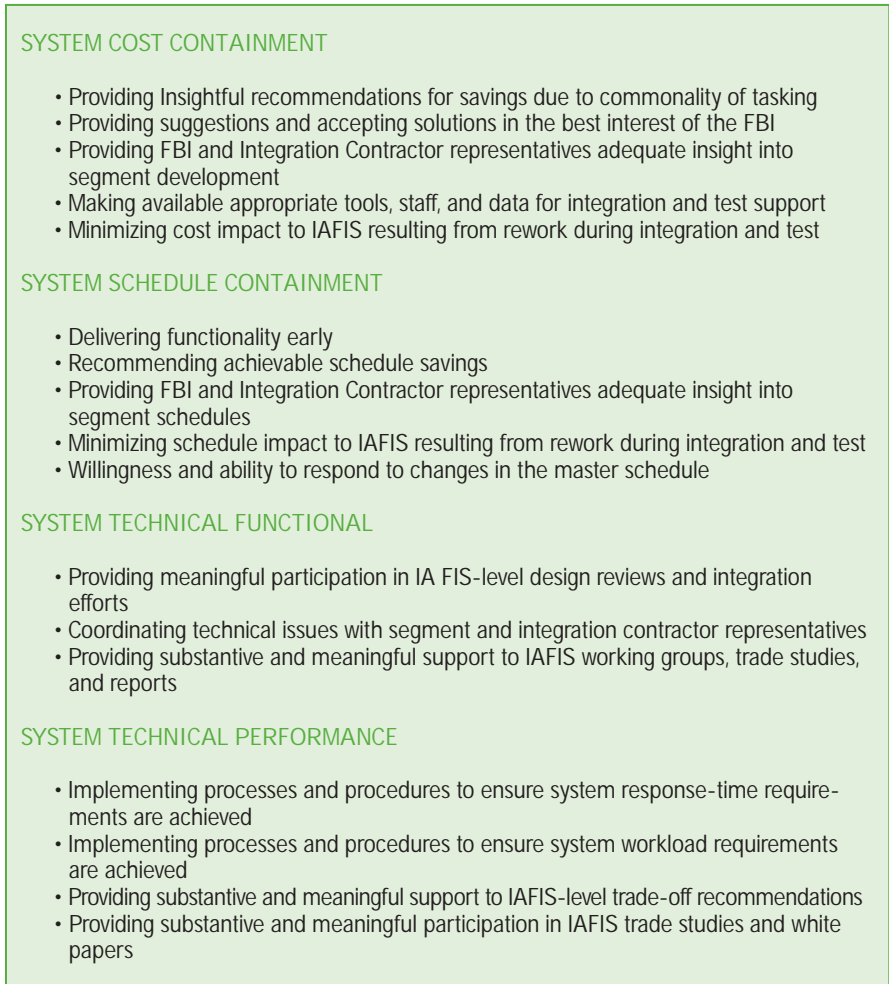
SYSTEM COST CONTAINMENT

- Providing Insightful recommendations for savings due to commonality of tasking
- Providing suggestions and accepting solutions in the best interest of the FBI
- Providing FBI and Integration Contractor representatives adequate insight into segment development
- Making available appropriate tools, staff, and data for integration and test support
- Minimizing cost impact to IAFIS resulting from rework during integration and test

SYSTEM SCHEDULE CONTAINMENT

- Delivering functionality early
- Recommending achievable schedule savings
- Providing FBI and Integration Contractor representatives adequate insight into segment schedules
- Minimizing schedule impact to IAFIS resulting from rework during integration and test
- Willingness and ability to respond to changes in the master schedule

SYSTEM TECHNICAL FUNCTIONAL

- Providing meaningful participation in IA FIS-level design reviews and integration efforts
- Coordinating technical issues with segment and integration contractor representatives
- Providing substantive and meaningful support to IAFIS working groups, trade studies, and reports

SYSTEM TECHNICAL PERFORMANCE

- Implementing processes and procedures to ensure system response-time requirements are achieved
- Implementing processes and procedures to ensure system workload requirements are achieved
- Providing substantive and meaningful support to IAFIS-level trade-off recommendations
- Providing substantive and meaningful participation in IAFIS trade studies and white papers

FIGURE 2. **System Award Fee Criteria**

IAFIS Data Center Hardware

Following formal implementation of the new award fee strategy on contract, this technical cooperation continued and even accelerated. The resultant program benefits were immediate and substantial.

• The contractors jointly developed an integrated test network to aid in software development and continued to share technical and programmatic status.

• Because of increased interchange of detailed technical information among the contractors, the program experienced an increased commonality of COTS software and hardware, including the selection of common database (Oracle), internal communications (Tuxedo), and configuration management (Clearcase) software products. These selections directly lower the support costs and ensure long-term compatibility among the segments as the COTS software products evolve over the system life cycle.

• Additionally, the segment contractors continue to share technical strategies, cooperate on mutual problems (looking for the best sys-

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tem solution as compared to the best segment solution), and even locate individuals at each other's facilities to ensure close technical coordination.

• The increased management and technical interchange also enhanced cooperative efforts involving interface working groups and system configuration management.

In the award fee management area, the FBI continues to encourage open communication efforts by providing monthly award fee feedback, including suggested actions needed to "hit the bell." This feedback includes both segment-specific observations and suggested actions where inter-segment cooperation and assistance would be helpful.

IAFIS continues to meet and exceed the "system level" award fee criteria (with its resultant high award fees).

Let Acquisition Reform Work For You

Implementing an additional system-level award fee structure for IAFIS significantly lowered the development risk on the program. Ultimately, the program team expects this lowered development risk to result in a fully integrated system with substantially lower life-cycle costs.

As the defense industry consolidates and further implements the various commercial standards initiatives, defense acquisition programs may experience the same problem as the FBI: how to encourage cooperation at the program level by commercial competitors.

They said it couldn't be done. But ultimately, the FBI and its IAFIS program team, through use of the innovative policies and practices promulgated by acquisition reform, sought and found a better, more effective method with demonstrated potential to "encourage" cooperation by commercial competitors.